

REMARKS/ARGUMENTS

Favorable reconsideration of this application as presently amended and in light of the following discussion is respectfully requested.

Claims 7 and 10-13 are presently active. Claims 1, 4, 5-6, and 9 were previously cancelled without prejudice. Claim 8 has been presently cancelled without prejudice.

In the outstanding Office Action, Claim 8 was objected to for failing to limit Claim 7. Claims 12 and 13 were objected to for failing to provide a logical relationship. Claims 7, 8, and 10-11 were rejected under 35 U.S.C. § 103(a) as being unpatentable over the patent issued to Kato et al (U.S. Pat. No. 5,852,504) in view of Sekiguchi et al (U.S. Pat. No. 5,798,864) and in view of Popovich et al (U.S. Pat. No. 6,115,152) and Eichenlaub (U.S. Pat. No. 6,541,034). Claims 12 and 13 were rejected under 35 U.S.C. § 102(a) as being unpatentable over Kato et al and Sekiguchi et al and Popovich et al and Eichenlaub in view of Fukagawa et al (U.S. Pat. No. 6,510,446) and Ohno (U.S. Pat. No. 6,232,940).

Regarding the claim objections, Applicant has canceled Claim 8. Applicant submits that Claims 12 and 13 (when read in the context of independent Claim 7) are logically related. Claim 7 positively sets forth a computer and a reflective liquid crystal display, and Claim 12 defines a plurality of dedicated Large Scale Integrator LSIs between the computer and the reflective liquid crystal display. The examiner will appreciate that the computer set forth in Claim 7 is not exclusively an optical component. Thus, the plurality of dedicated Large Scale Integrator LSIs are components logically related to communicating to and from the computer.

Claims 7 +12: A color moving-image holographic reproducing device comprising:

(a) a computer configured to create a computer-generated hologram from three-dimensional coordinate data of a three-dimensional object which is externally obtained;

- (b) a reflective liquid crystal display connected to the computer and configured to display the computer-generated hologram;
 - (c) a half mirror configured to project the displayed computer-generated hologram;
 - (d) three light-emitting diodes of primary colors red (R), green (G), and blue (B) (LEDs) functioning as reference light source; and
 - (e) the LEDs arranged on a two dimensional grid pattern and respectively emitting primary colors of light, red (R), green (G), and blue (B), at the same time, wherein a first LED of the R, G and B LEDs is disposed in the vicinity of a second LED in the horizontal direction and a third LED is disposed in the vicinity of the second LED in the vertical direction orthogonal to the horizontal direction;
- wherein optical axes of color light beams from the LEDs are shifted from each other, the light beams are projected to the half mirror and onto the reflective liquid crystal display, and a color holographic image is formed from the computer-generated hologram;
- further comprising:
- a dedicated high-speed parallel distributed processing system including a plurality of dedicated Large Scale Integrator LSIs between the computer and the reflective liquid crystal display.

Hence, the claim objections have been addressed.

Regarding the rejection on the merits, M.P.E.P. § 2141.02 requires that, for an examiner to rely on a reference under 35 U.S.C. § 103, the reference must be analogous art. The Court in In re GPAC Inc., 57 F.3d 1573, 35 USPQ2d 1116 (Fed. Cir. 1995), noted that:

To support a finding that these twelve references are within the scope of the relevant prior art, we must therefore determine that they are analogous art that is "reasonably pertinent to the particular problem with which the inventor was involved." A reference is reasonably pertinent if, even though it may be in a different field of endeavor, it is one which, because of the matter with which it deals, logically would have commended itself to an inventor's attention in considering his problem. If a reference disclosure relates to the same problem as that addressed by the claimed invention, "that fact supports use of that reference in an obviousness rejection. [Citations removed]"

In the present case, Applicant submits that problems with electronic holographs (related to the present invention) are not related to problems with stereoscopic imaging. Thus, one of ordinary skill in the art would not be motivated to consider the stereoscopic imaging techniques of Eichenlaub. Accordingly, Eichenlaub is not analogous art applicable

for a 35 U.S.C. § 103 obviousness rejection of Claim 7. The examiner has in no way explained why problems with stereoscopic imaging are reasonably pertinent to a color moving-image holographic reproducing device.

Hence, for this reason alone, independent Claim 7 is believed to patentably define over the applied art of record.

Furthermore, M.P.E.P. § 2143.03 requires that all words in a claim must be considered in judging the patentability of the claim against the prior art. The Office Action states on pages 5 and 6:

Kato et al teaches that the three light sources, (for generating red, blue and green light respectively), are arranged in a two-dimensional array manner, (please see Figure 36) each with an associated spatial light modulators. One skilled in the art would understand in order for each of the light beam to illuminate the spatial light modulator (SLM, 200, 202, 204, Figure 36), arranged in two dimensional manner, the light sources have to be arranged also in two dimensional manner, (i.e. the semiconductor light sources (206, 208, 210) have to be aligned with the optical axes of the SLM respectively), since the collimating light beams from the three light sources will not be able to turn direction by themselves or by SLM to form the orthogonal arranged light beams as they incident on the half mirror. However this reference does not teach that the three color light sources are arranged so that lights are emitted from a plane formed by the two dimensional light sources patterns. But one skilled in the art must understand that since the three primary color lights are used to illuminate the liquid crystal display device to produce full color display. The three color light beams have to be aligned with the arrangement of the color sub-pixels to produce the full color display. As demonstrated by Eichenlaub in a full color image display arrangement, light sources with red LED (174, Figure 13), green LED (175) and blue LED (176 and/or 177) are arranged in a two dimensional grid pattern with first LED (such as the blue LED, 177) at vicinity of the second LEDs (green LED 176) in the horizontal direction and a third LED (red LED 174) is at the vicinity of the second LED (green LED 176) at vertical direction, so that the light emitting diodes for the three primary color can be used to illuminate a pixel of the liquid crystal display to produce the full color image display. It would then have been obvious to one skilled in the art to arrange the three color light sources in a grid pattern that matches the pixels on the liquid crystal display for the benefit of using a single LCD display to efficiently illuminate the display to provide full color image display.

Yet, Fig. 36 of Kato et al corresponds to a three panel color holography technique where each RGB color light source and the reproduced beams of light are combined to form a color holographic image. Fig. 9 of Sekiguchi et al corresponds to a single-plate time-multiplexing color holography technique where one panel is prepared, and RGB color lights are combined into one beam, and the combined beam is projected in a time-multiplexing sequence of red, green, and blue.

Both documents have the common feature that the optical axes of RGB lights need to be aligned precisely. The precise alignment requirement has been well known in the art, and is normally expected in optical devices, which Kato et al and Sekiguchi et al are evidence of. On the other hand, one significant feature of Claim 7 is that the optical axes of the RGB light beams are purposely shifted from each other. M.P.E.P. § 2145 indicates that proceeding contrary to accepted wisdom is evidence of non-obviousness. Therefore, it would not have been obvious to one skilled in the art at that time of the invention that a color holographic image could be formed when the optical axes are shifted from each other.

Furthermore, the *on and off synchronization* of the LEDs in Eichenlaub teaches away from the claimed invention. In the outstanding Office Action, on page 7, the examiner states that Applicant failed to explicitly state the difference. The difference is that Claim 7 defines that the LEDs are arranged on a two dimensional grid pattern and respectively emit primary colors of light, red (R), green (G), and blue (B), at the same time, while Eichenlaub teaches on and off synchronization. The Court in *In re Gurley*, 27 F.3d 551, 553, 31 USPQ2d 1130, 1131 (Fed. Cir. 1994) stated that:

A reference may be said to teach away when a person of ordinary skill, upon reading the reference, would be discouraged from following the path set out in the reference, or *would be led in a direction divergent from the path that was taken by the applicant*. The degree of teaching away will of course depend on the particular facts; in general, a reference will teach away if it suggests that the line of development flowing from the reference's disclosure is unlikely to be productive of the result sought by the applicant. [Emphasis added.]

Alternatively, the light emitting elements in Eichenlaub (functioning in an on and off synchronization) can be considered to function differently than in the light emitting elements in the claimed combination. In other words, the claimed elements in combination do **not** function as each element separately functions in Eichenlaub.

Hence, for all these reasons given above, independent Claim 7 is believed to patentably define over the applied art of record.

Rebuttal evidence: Guidelines for the Patent and Trademark Office, published in Federal Register Vol. 72, No. 195, on Wednesday October 10, 2007 entitled: "Examination Guidelines for Determining Obviousness under 35 U.S.C. 103 in View of the Supreme Court Decision in KSR International v. Teleflex Inc.," indicate that:

Office personnel should consider all rebuttal evidence that is timely presented by the applicants when reevaluating any obviousness determination. Rebuttal evidence may include evidence of "secondary considerations," such as "commercial success, long felt but unsolved needs, [and] failure of others", and may also include evidence of unexpected results. Office personnel must articulate findings of fact that support the rationale relied upon in an obviousness rejection. As a result, applicants are likely to submit evidence to rebut the fact finding made by Office personnel. For example, in the case of a claim to a combination, applicants may submit evidence or argument to demonstrate that:

- (1) one of ordinary skill in the art could not have combined the claimed elements by known methods (e.g., due to technological difficulties);
- (2) the elements in combination do not merely perform the function that each element performs separately; or
- (3) the results of the claimed combination were unexpected.

Once the applicant has presented rebuttal evidence, Office personnel should reconsider any initial obviousness determination in view of the entire record. All the rejections of record and proposed rejections and their bases should be reviewed to confirm the continued viability. The Office action should clearly communicate the Office's findings and conclusions, articulating how the conclusions are supported by the findings.

Here, in the present case, Applicant has presented rebuttal evidence for 1) the improper application of non-analogous art, which has not been rebutted by the examiner, 2)

why the claimed invention is contrary to accepted wisdom, 3) *teaching away*, and 4) why the claimed elements in combination *do not function as each element separately functions* in Eichenlaub.

Hence, for all these reason, independent Claim 7 (and the claims dependent therefrom) are believed to patentably defined over the references of record.

Finally, should there not be a favorable decision for patentability, Applicant requests (as directed by the guidelines) that the Office clearly communicate the Office's findings and conclusions, articulating how the conclusions are supported by the findings in order for Applicant to decide whether or not an appeal is warranted.

Conclusion, in view of the present amendment and in light of the above discussions, the outstanding grounds for rejection are believed to have been overcome. The application as amended herewith is believed to be in condition for formal allowance. An early and favorable action to that effect is respectfully requested.

Respectfully submitted,

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